

*EQ: How do you calculate and apply the principles of probability?*

$P(A \text{ and } B)$  finds the probability of outcomes in that are in \_\_\_\_\_ events  $A$  and  $B$ .

$P(A \text{ or } B)$  find the probability of outcomes that are in \_\_\_\_\_ event  $A$  or  $B$ .

$P(A \text{ or } B) =$

A compound event has two or more \_\_\_\_\_ events. That is, the two events do not depend on each other.

Drawing \_\_\_\_\_ will tell us the number of possible outcomes as well as show us what the possible outcomes are.

Find the probability of an event by finding the number of \_\_\_\_\_ and divide by the \_\_\_\_\_ of possible outcomes.

If you take an object and replace it, the sample space \_\_\_\_\_.

If you do not replace the item, then the sample space \_\_\_\_\_.

Example 1: A spinner with 6 equal sections numbered 1-6 is spun once. What is the probability of getting:

a. an even number greater than 3

b. a prime number less than 3

Example 2: A card is drawn from a standard deck of 52 cards. Find the probability that it is:

a. a three or a seven

b. a face card

c. a heart or a diamond

d. not an ace

Example 3: If you meet a family with three children, what is the probability that there are exactly 2 girls? (Draw a tree diagram.)

Example 4: Matt Mitarnowski has 4 quarters, 6 dimes, and 3 pennies in his pocket. If he reaches in and takes a coin out, what is the probability that it is:

a. either a nickel or dime

b. worth at least \$.10

Example 5: A bag contains 4 red marbles, 5 blue marbles, and 6 green marbles. If one marble is drawn, examined, and then replaced, what is the probability that after two draws you have:

- a. two red marbles
- b. the first one blue and the second green

Example 6: A bag contains 4 red marbles, 5 blue marbles, and 6 green marbles. If one marble is drawn, examined, and not replaced, what is the probability that after two draws you have:

- a. two red marbles
- b. the first one blue and the second green